

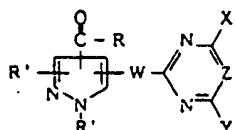
Specification

1. Title of the Invention

PYRAZOLECARBOXYLIC ACID DERIVATIVES AND HERBICIDES

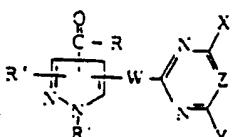
2. Claims

(1) Pyrazolecarboxylic acid derivatives expressed by the general formula



(in the above formula, R indicates an alkoxy group, a hydroxy group, an alkoxy group (this group may be substituted by alkoxy groups, halogen atoms, phenyl groups substituted phenyl groups, alkylthio groups or allyloxycarbonyl groups), an alkylideneaminoxy group, a cycloalkylideneaminoxy groups, and alkenyloxy group (this group may be substituted by alkyl groups or halogen atoms), an alkynyloxy group, an imidazolyl group, an alkylsulfonylamino group or a group expressed by the formula $O^{(-)}M^{(+)}$ (in this formula, $M^{(+)}$ indicates one equivalent of alkali metal, alkaline earth metal, ammonium or organo-ammonium ions), R^1 and R^2 may be the same or different, and indicate hydrogen atoms, alkyl groups, phenyl groups, substituted phenyl groups, pyridyl groups, thienyl groups or substituted pyrimidinyl groups, W indicates an oxygen atom, a sulfur atom or a group expressed by the formula NR' (in this formula, R' indicates a hydrogen atom, an alkyl group, an alkoxyalkyl group, a benzyl group or a formyl group), X and Y may be the same or different, and indicate hydrogen atoms, alkoxy groups, halogen atoms, haloalkoxy groups or alkyl groups, and Z indicates a methyne group or a nitrogen atom).

(2) Herbicides containing as active ingredients pyrazolecarboxylic acid derivatives expressed by the general formula



(in the above formula, R indicates an alkoxy group, a hydroxy group, an alkoxy group (this group may be substituted by alkoxy groups, halogen atoms, phenyl groups substituted phenyl groups, alkylthio groups or allyloxycarbonyl groups), an alkylideneaminoxy group, a cycloalkylideneaminoxy groups, and alkenyloxy group (this group may be substituted by alkyl groups or halogen atoms), an alkynyloxy group, an imidazolyl group, an alkylsulfonylamino group or a group expressed by the formula $O^{(-)}M^{(+)}$ (in this formula, $M^{(+)}$ indicates one equivalent of alkali metal, alkaline earth metal, ammonium or organo-ammonium ions), R^1 and R^2 may be the same or different, and indicate hydrogen atoms, alkyl groups, phenyl groups, substituted phenyl groups, pyridyl groups, thienyl groups or substituted pyrimidinyl groups, W indicates an oxygen atom, a sulfur atom or a group expressed by the formula NR' (in this formula, R' indicates a hydrogen atom, an alkyl group, an alkoxyalkyl group, a benzyl group or a formyl group), X and Y may be the same or different, and indicate hydrogen atoms, alkoxy groups, halogen atoms, haloalkoxy groups or alkyl groups, and Z indicates a methyne group or a nitrogen atom).

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hydrogen atom, an alkyl group, an alkoxyalkyl group, a benzyl group or a formyl group), X and Y may be the same or different, and indicate hydrogen atoms, alkoxy groups, halogen atoms, haloalkoxy groups or alkyl groups, and Z indicates a methyne group or a nitrogen atom).

3. Detailed Description of the Invention

(Field of Industrial Utilization)

The present invention concerns novel pyrazolecarboxylic acid derivatives and herbicides which contain these derivatives as active ingredients, and which can be used in rice paddies, upland fields and non-agricultural areas, etc.

[Prior Art]

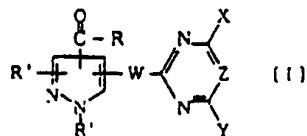
It is known that quinoline, naphthalene, benzofuran, thiophene and aromatic carboxylic acid derivatives containing pyridine rings have an herbicidal effect (Japanese Patent Application Kokai No. 2-121973).

[Problems to Be Solved by the Invention]

However, such compounds are not always satisfactory in terms of reliability of the herbicidal effect and safety with respect to useful crops, etc. The object of the present invention is to provide pyrazolecarboxylic acid derivatives which have a superior herbicidal effect.

[Means Used to Solve the Abovementioned Problems]

The present inventors conducted diligent research with the aim of developing compounds which have superior herbicidal activity without causing chemical injury to useful crops. As a result of this research, the inventors discovered that [a] pyrazolecarboxylic acid derivatives have a superior herbicidal activity against annual weeds and perennial rice-family and broad-leaf weeds when used in rice paddy flooding treatments and upland field soil or stem-and-leaf treatments, [b] such derivatives show an especially high degree of herbicidal activity against broad-leaf weeds, and [c] such derivatives are highly safe with respect to crops such as rice, wheat and soybeans, etc. These discoveries led to the perfection of the present invention. Specifically, the compounds of the present invention are [a] pyrazolecarboxylic acid derivatives expressed by the general formula



(in the above formula, R indicates an alkoxy group, a hydroxy group, an alkoxy group (this group may be substituted by alkoxy groups, halogen atoms, phenyl groups substituted phenyl groups, alkylthio groups or allyloxycarbonyl groups), an alkylideneaminoxy group, a cycloalkylideneaminoxy groups, and alkenyloxy group (this group may be substituted by alkyl

groups or halogen atoms), an alkynyloxy group, an imidazolyl group, an alkylsulfonylamino group or a group expressed by the formula $O^{(-)}M^{(+)}$ (in this formula, $M^{(+)}$ indicates one equivalent of alkali metal, alkaline earth metal, ammonium or organo-ammonium ions), R^1 and R^2 may be the same or different, and indicate hydrogen atoms, alkyl groups, phenyl groups, substituted phenyl groups, pyridyl groups, thienyl groups or substituted pyrimidinyl groups, W indicates an oxygen atom, a sulfur atom or a group expressed by the formula NR' (in this formula, R' indicates a hydrogen atom, an alkyl group, an alkoxyalkyl group, a benzyl group or a formyl group), X and Y may be the same or different, and indicate hydrogen atoms, alkoxy groups, halogen atoms, haloalkoxy groups or alkyl groups, and Z indicates a methyne group or a nitrogen atom), and [b] herbicides which contain such derivatives as active ingredients.

Next, examples of compounds of the present invention are shown in Tables 1 through 3. Furthermore, the compound numbers [shown in the tables] will be referred to in subsequent descriptions.